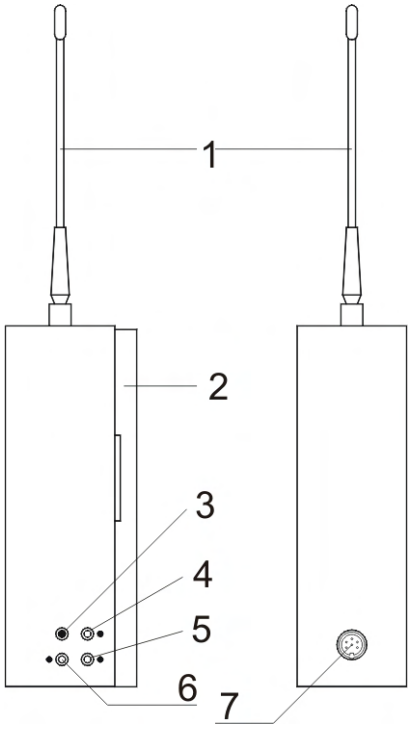
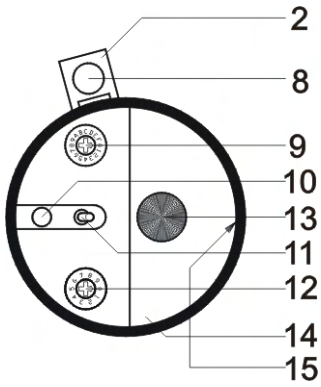
ALGE-TIMING

Version-E080421

TED

Manual





1	antenna
2	green holder with velcro fastener
3	light-emitting diode
4	banana plug yellow, data input
5	banana plug green, signal input
6	banana plug black, shared ground (compound)
7	DIN-plug: data and signal input as well as external feed
8	3/8 thread measured in inches, for tripod fastening
9	code-switcher (16 positions)
10	device-button
11	device-switcher
12	code-switcher (10 positions)
13	fastening screw for battery-cover
14	battery-cover
15	type shield with device number

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Subject to technical alterations in terms of improvement!

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1 General

Purpose: Wireless transfer of timing impulses or data

Transfer frequency : in 70cm band

TED-TX10: Teledata transmitter with an output performance of 10mW appr. 1,5 km range, l/4 antenna

TED-RX10: Teledata receiver to TED-TX10 with l/4 antenna

TED-TX400: Teledata transmitter with an output performance of 400mW appr. 5 km range, BNC antenna

TED-RX400: Teledata receiver to TED-TX400 with BNC antenna

Minimal equipment components: 1x TED-TX and 1x TED-RX

Expanded Accessories: added TED-TX for impulse and data transfer, added TED-RX for data transfer
RX-C10 for impulse transfer if you use more than two timing channels

Cognition feature for TED-TX: type shield (15) and green holder (2)

Cognition feature for TED-RX: type shield (15) and red holder (2)

Indication on type shield: device type
device number

Impulse transfer: The impulse transfer works directly from a ALGE-emitter to the ALGE timing device.

Data transfer ALGE "1 Sec.": Every data set will be transfered 10 times out of safety reasons. Onedata set per second will be transfered.

Data transfer ALGE "0,1 Sec": Every data set will be transfered once. One data set per 0,1 seconds will be transfered.

Data transfer 2400 Baud: Every data set will be transfered once with 2400 Baud. At the beginning as well as at the end of each data set you have to indicate an identifier in order to start and to stop the data transfer.

Data transfer 4800 Baud: Every data set will be transfered once with 4800 Baud. At the beginning as well as at the end of each data set you have to indicate an identifier in order to start and to stop the data transfer.

Data transfer directly: All data will be transfered, the transmitter (TED-TX) is always on.

System test:	Field strength test Annoyance test
Power supply:	with 6 batteries or with 6 NiCd-accus or with external supply

Radio permission:

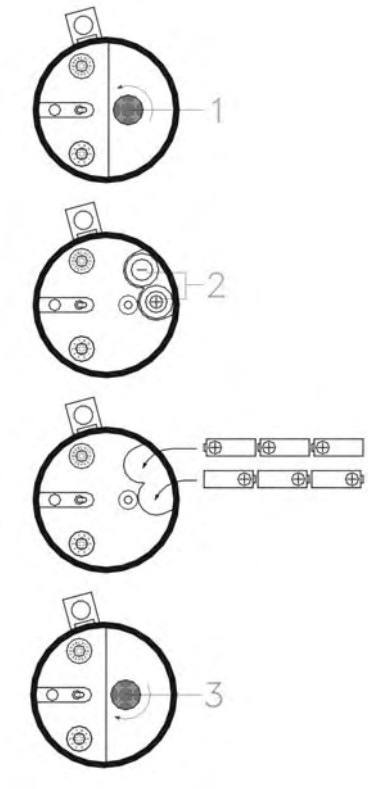
The permission regulations in Europe variies from country to country.
For some countries you have to apply for a permission for our TED-TX400.
If you need any information concerning this matter , please get in contact with your ALGE representative.

2 Power supply

There are two types of power supply:

- ☞ Internal power supply with six batteries (Mignon) or accus (Typ AA)
- ☞ External power supply with ALGE power supply unit, via timing device or a 12V battery.

2.1 Battery exchange



- ☞ You can reach the battery cover at the lower side of the TED´s.
- ☞ The knurled screw must be unscrewed anticlockwise. Remove the cover.
- ☞ Remove the batteries (put up the device in order that the batteries will slip out.)
- ☞ Set in the new (or loaded) battery. (Notice the polarity, see battery cover)
- ☞ Put on the cover and screw the knurled screw. The screw must be screwed to the stop position.

2.2 Operation with Alkaline batteries

Every TED requires 6 Alkaline batteries (Type AA). The battery status will be shown during the normal operation with help of the diodes.

Color of diode (3)	**Battery capacity**
green	35-100 %
border between green and orange	ca. 35 %
orange	20 to 35 %
border between orange and red	ca. 20 %
red	less than 20 %
out	empty

The TED switches-off automatically, if the battery tension is below 5 Volt!

ATTENTION: The light-emitting diode has an other function during the field strength test! (see point 3.5)

2.2.1 Battery warning

If the battery has less than 20% capacity (LED red) then the TED-TX will transfer this information the the TED-RX together with the next data set or information. He will switch-on the internal loudspeaker, after that you can hear alternately a high-pitched and a low tone.

The TED-RX will always activiate the internal loudspeaker as soon as the battery capacity is below 20%.

2.2.2 Operation time

The above indicated measurings refer to Alkaline batteries (Type Energizer) at room temperatures (25°C).
Please pay attention to the fact, that the battery capacity will be extremely reduced at low temperatures. (at –20°C approx. just 20% capacity).

TED-TX10	without photocell	1 impulse per minute	approx. 300 hours
TED-TX10	with photocell	1 impulse per minute	approx. 66 hours
TED-TX10	---	1 data set per minute	approx. 270 hours
TED-TX10	---	always sends data	approx. 54 hours
TED-TX400	without photocell	1 impulse per minute	approx. 270 hours
TED-TX400	with potocell	1 impulse per minute	approx. 60 hours
TED-TX400	---	1 data set per minute	approx. 54 hours
TED-TX400	---	always sends data	approx. 6 hours
TED-RX	---	the same in all operation modes	approx. 54 hours

2.3 Operation with NiCd-accus

Every TED requires 6 NiCd-accus (Typ AA).The accus cannot be loaded in the device. In order to load you will need a separately loading station. The accu sitution (accu capacity) will be shown during the normal operation with help of the light-emitting diodes (3).

Color of diode (3)	**Battery capacity**
green	15 to 100 %
border between green and orange	approx. 15 %
orange	5 to 15 %
border between orange and red	approx. 5 %
red	less than 5 %
out	empty

The TED switches automatically off, if the battery pressure goes below 5 Volt!

Attention: The light-emitting diode has an other function during the field strength test! (see point 3.5)

2.3.1 Accu warning

The same as Alkaline batteries.

2.3.2 Operation time

The above indicated measurings refer to accus of the type Panasonic 700mAh at room temperatures (25°C).
Please pay attention to the fact, that the battery capacity will be reduced at low temperatures. (at –20°C approx. just 80% capacity).

TED-TX10	without photocell	1 impulse per minute	approx. 100 hours
TED-TX10	with photocell	1 impulse per minute	approx. 22 hours
TED-TX10	---	1 data set per minute	approx. 90 hours
TED-TX10	---	always sends data	approx. 18 hours
TED-TX400	without photocell	1 impulse per minute	approx. 90 hours
TED-TX400	with photocell	1 impulse per minute	approx. 20 hours
TED-TX400	---	1 data set per minute	approx. 18 hours
TED-TX400	---	always sends data	approx. 2 hours
TED-RX	---	the same in all operation modes	approx. 18 hours

2.4 External supply

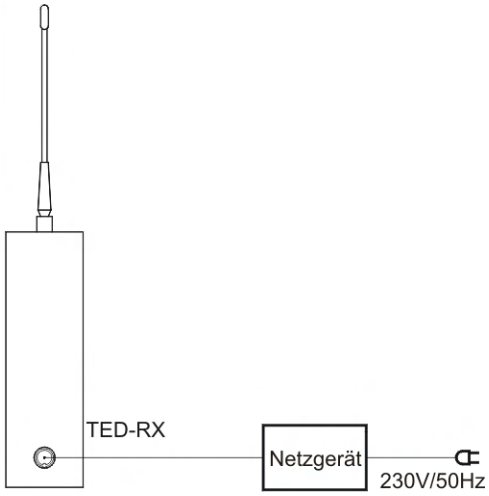
The TED can be supplied by a power supply unit.

Supply pressure:
- ☞ TED-TX10 +6,5 to 28 VDC
- ☞ TED-TX400 +9 to 15 VDC
- ☞ TED-RX +6,5 to 28 VDC

2.4.1 Direct supply

The TED can be supplied directly by the following ALGE power supply units:

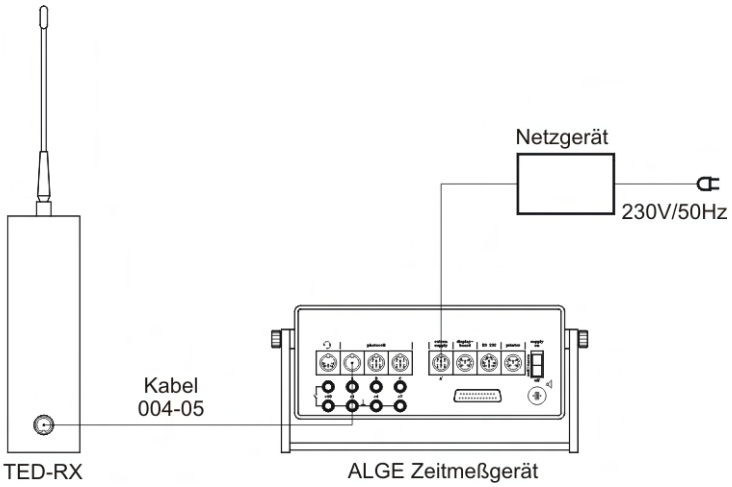
- ☞ NLG4
- ☞ NLG8
- ☞ LG-Comet (not for TED-TX400)
- ☞ NBG
- ☞ NG13
- ☞ PS12



2.4.2 Supply by the timing device

In the operation type impulse transfer, the TED-RX can be supplied by the power supply unit ot the timing device. Therefore you need cable 004-05 between the TED-RX and the timing device.

ATTENTION: The supply just functions, if the timing device is connected to an external supply.
LG-Comet cannot supply Comet and the TED at the same time.



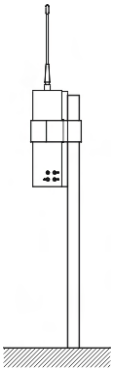
3 Implementation

The reach of the radio contact is strongly depending on the location of the transmitter and receiver. In many cases you can improve the received field strength (high field strength = high safety) by a minimal relocation if the TED-TX or RX.

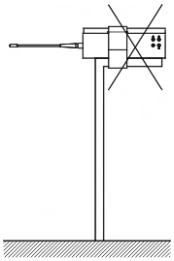
3.1 Installation

There are different possibilities to mount the TED:

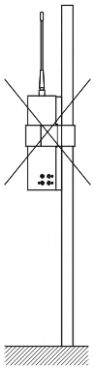
Bad:
The TED should never stand on the ground. Too much reach will be lost.



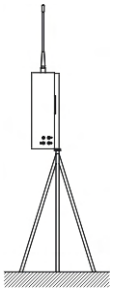
Good:
Mounting with Velcro fastener. In critical situations, always make an over-head-mounting.



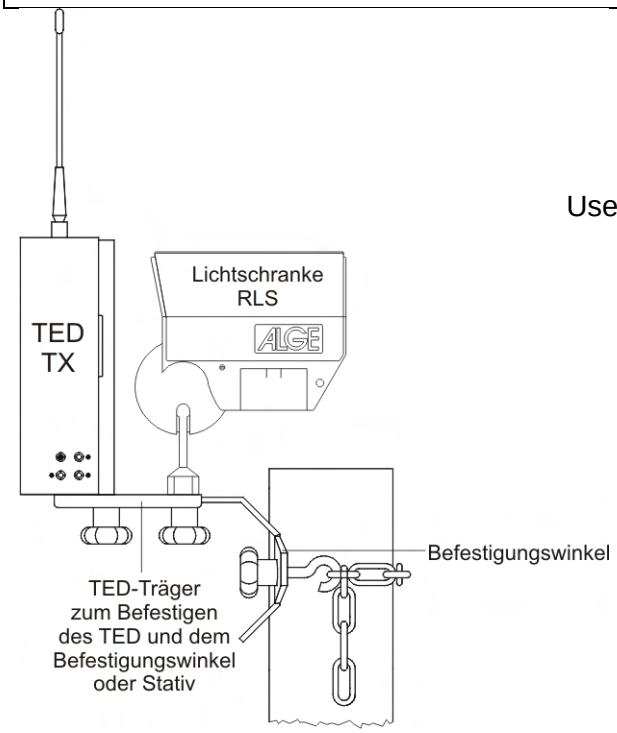
Bad:
The antenna must always be uprightly.



Bad:
There mustn't be any parts near the antenna!



Good:
Mounting on a tripod (3/8 inch)



Used for small and middle distances.

3.2 Switch-on

Normal operation
- Switch-on with device-switcher (11)
- TED works in operation mode **„Impulse transfer“**
- Light-emitting diode blinks

Test-Mode
- Push device-switcher (10)
- Device-switcher (11) to „ON“, light-emitting diode should blink
- Let loose of the device-switcher.
- Test-Mode will automatically switch-off after one minute, manually with device-switcher (10)

Data transfer ALGE 1 Sec.
- Switch-on theTED, light-emitting diode must blink
- If the first data set is transfered in the right format, then the data transfer will be activated for 1 second.

Data transfer ALGE 0,1 Sec.
- Set code-switcher (12) of TED-TX and RX to position 1
- Switch-on the TED, light-emitting diode must blink

Data transfer 2400 Baud
- Set code-switcher of TED-TX and RX to position 3.
- Switch-on the TED, light-emitting diode must blink
- Every data set will be transfered once with 2400 Baud.
- At the beginning as well as at the end of each data set you have to indicate an identifier in order to start and to stop the data transfer.

Data transfer 4800 Baud

- Set code-switcher of TED-TX and RX to position 4.
- Switch-on the TED, light-emitting diode must blink
- Every data set will be transfered once with 4800 Baud.
- At the beginning as well as at the end of each data set you have to indicate an identifier in order to start and to stop the data transfer.

Data transfer directly

- Set code-switcher of TED-TX and RX to position 6.
- Light-emitting diode of TED-RX must shine.
- Light-emitting diode of TED-TX blinks. **At first you have to send a data set that the TED-TX switch in the direct mode (illuminating diode goes from blinking to shine).**
- Every data set will be transfered.

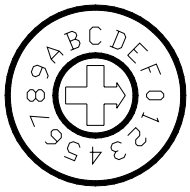
3.3 Choice of operation mode

Switcher	Signal mode	Data mode
Code-switcher (12)	Position 0 to 9 for choice of timing-channel	Position 0: data transfer ALGE 1 second Position 1: data transfer ALGE 0,1 second Position 2: without function Position 3: data transfer 2400 Baud Position 4: data transfer 4800 Baud Position 6: data transfer directly Position 7 to 9: without function
Code-switcher (9)	for addressing	for addressing
Device-push-button (10)	field strength tst On/Off	repeat last data set

The field strength test can also be started by triple short-circuiting of the green and black banana plug.

3.4 Addressing

The code-switcher (9) for addressing has got 16 positions and is accessible from the bottom. All TED-TX and RX must be installed to the same address if they work in one system.



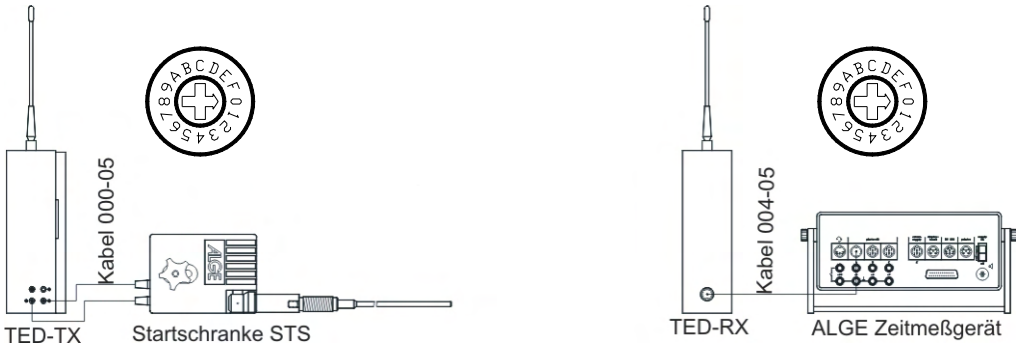
Chose the requested address with the provided screw driver. The arrow of the switcher shows the position. Our factory settins is at position 0.

If several TED's are used in the same area, you have to work with different addresses. **So you are safe of false impulses or data, though not against blocking of another device.**

Code-switcher (9)	Address
Position = 0	Address = 0
Position = 1	Address = 1
Position = 2	Address = 2
Position = 3	Address = 3
Position = 4	Address = 4
Position = 5	Address = 5
Position = 6	Address = 6
Position = 7	Address = 7
Position = 8	Address = 8
Position = 9	Address = 9
Position = A	Address = A
Position = B	Address = B
Position = C	Address = C
Position = D	Address = D
Position = E	Address = E
Position = F	Address = F

If you will avoid any blocking of another TED, so you have to change to another radio-frequency.

Example impulse-transfer of start signal



TED –TX and RX must be adjusted to the same address.

3.5 Field strength test for site selection

The field strength test can just be carried out in the operation mode „impulse transfer“.
If you would like to work smooth with your TED, you have to choose an appropriate location.

Activate field strength:

- Switch-on TED-TX
- Push device-button (10)
- Mount the TED aloft.(side 9)
- Switch-on TED-RX

- The loudspeaker of the TED-RX makes a tone and the light-emitting diode blinks.
- The higher the tone, the better the field strength.

- Diode blinks green > Signal is good
  Diode blinks orange > Signal is low
  Diode blinks red > Signal missing or too low

- If the loudspeaker plays back voices, it means that this radio frequency is used for voice radio. This can cause data or impulse losses.

- The field strength test will automatically be finished after 1 minute by the TED-TX.

For the retrieval of the ideal location you have to move the TED-RX. The best location is chosen if the tone is as high as possible and if the diode is blinking green.

The field strength can only be evaluated with TED-RX!

TED-TX and RX must have a distance of 5 to 10 meters between them to assure a trouble-free work.

3.6 Annoyance test – tapping of the receiver for disturbing signals

If you push the device-button of the TED-RX for about half a second, the loudspeaker will be activated and you can intercept the channel for possible disturbing signals.

At the same time the light-emitting diode shows the field strength of the received signals, also those of a possible disquieter

ATTENTION:
The electric power consumption of the TED-RX doubles during this test.

Push the device-button to switch-off the loudspeaker.

4 Impulse transmission

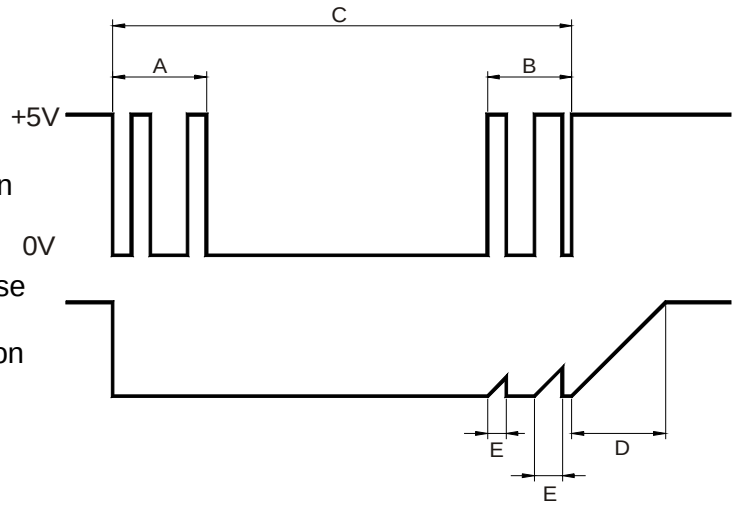
The impulse transmission functions directly from an ALGE emitter to a ALGE timing device via radio.
Every impulse, transfered by the TED, has a constantly delay of 0,100 seconds. Maximum fault ; 0,001 seconds.

- ☞ If only the start impulse is transfered by TED, you have to add a tenth second to the run time.
- ☞ If only the finish impulse is transfered by TED, you have to discount a tenth second of the run time.
- ☞ If the start impulse as well as the finish impulse is transfered by TED, the run time is accurately.

TED-TX is from the beginning of the first impulse blocked for 0,163 seconds respectively incidental impulses within this time will be delayed until this time is expired.
TED-RX is from the beginning of the first impulse blocked for 0,1 seconds and ignores all impulses within this period.

Bounce protection

Inside the TED-TX is a built-in bounce protection integrated. This bounce protection prevents double-impulses. (50 ms)



A Bounce at the beginning of an impulse
B Bounce at the end of an impulse
C Impulse duration plus bounce duration
D Bounce protection time 50 ms
E Bounce protection abrupted, since 50 ms were not expired

Control of the impulse transmission

If a timing impulse is transfered, the diode of TED-TX and RX will blink once again.

Safety of the impulse transmission

Please bare in mind that the radio connection may be disturbed by outside influences. That means that in case of annoyances, there can't be any transmissions of impulses.

!! With an impulse transmission via radio we can never assure the same security as by an impulse transmission by cable. !!

The following ALGE-devices can be used as emitter:

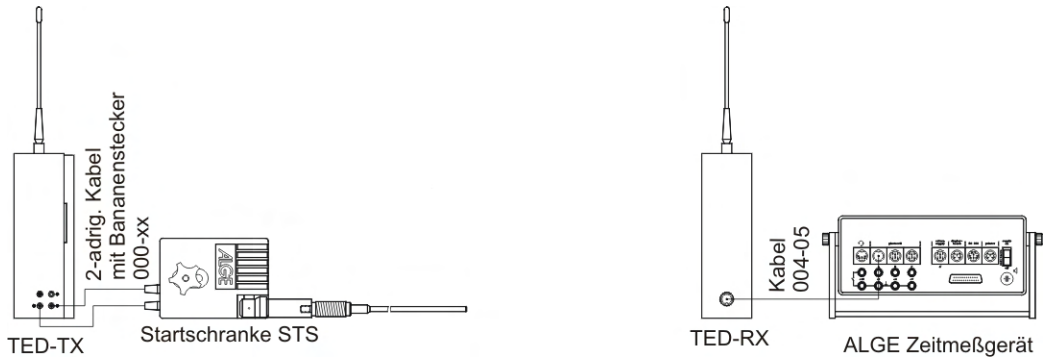
- ☞ all startgates
- ☞ photocells RLS, RLS3
- ☞ SM8, STB1, Tapeswitch, hand taste 023-xx
- ☞ Touchpads TP
- ☞ ASC

The following ALGE timing devices can be used as impulse receiver:

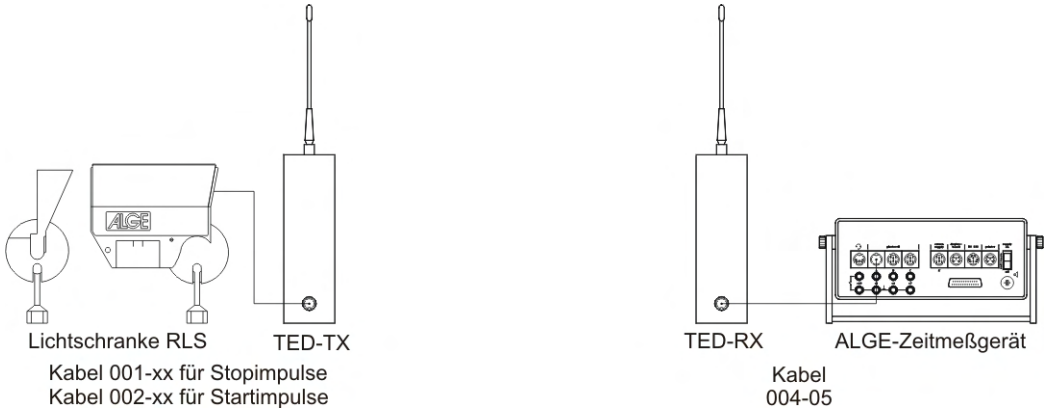
- ☞ TDC4000
- ☞ TDC8000
- ☞ TDC8001
- ☞ Timy
- ☞ Comet
- ☞ Timer S4
- ☞ Timer S3
- ☞ Videotimer VT2 / VT2D
- ☞ OPTIc (only start impulse)

With the standard TED, two timing channels can be transmitted. Normally – if cable 004-xx is used – it will be start channel C0 and finish channel C1.

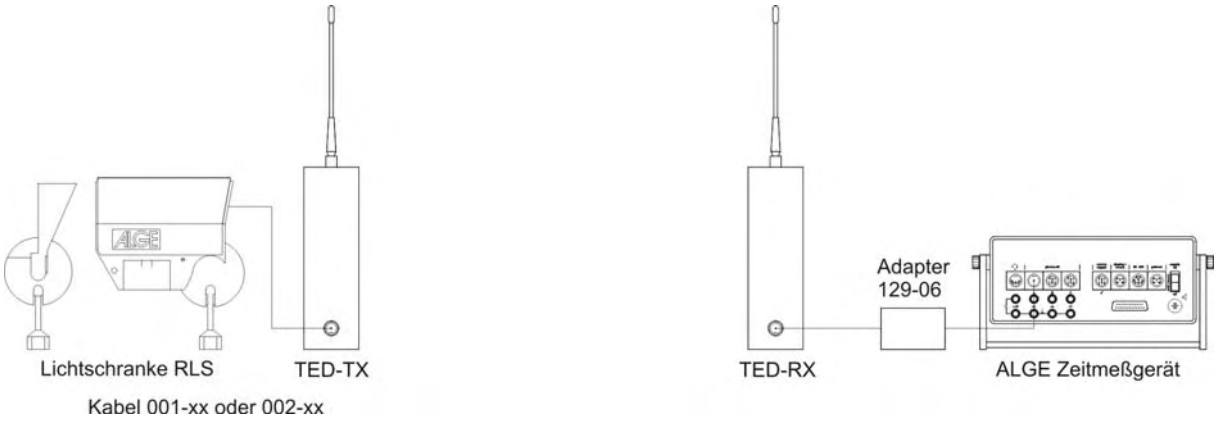
4.1 Impulse transmission of a startgate



4.2 Impulse transmission of a photocell



4.3 Impulse transmission RLS with adapter 129-06



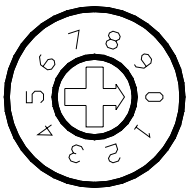
You can adjust with adapter 129-06 if you will receive a start or stop impulse.
This has the advantage if you have e.g. a round course, you just need one photocell.

4.4 Impulse transmission with more than 2 timing channels

Here you need adapter RX-C10 so that you can transfer up to 10 timing channels in connection with TDC8000/8001 and Timer S4. Therefore you need several TED-TX. You can transfer 2 timing channels per TED-TX.
You can adjust the timing channels at the TED-TX with the code-switcher (12).
The code-switcher (12) don't have any function in this operation.

ATTENTION: Blocking time (see point 4, impulse transmission)

With the small provided screw driver you can adjust the arrow of the code-switcher to the right position.

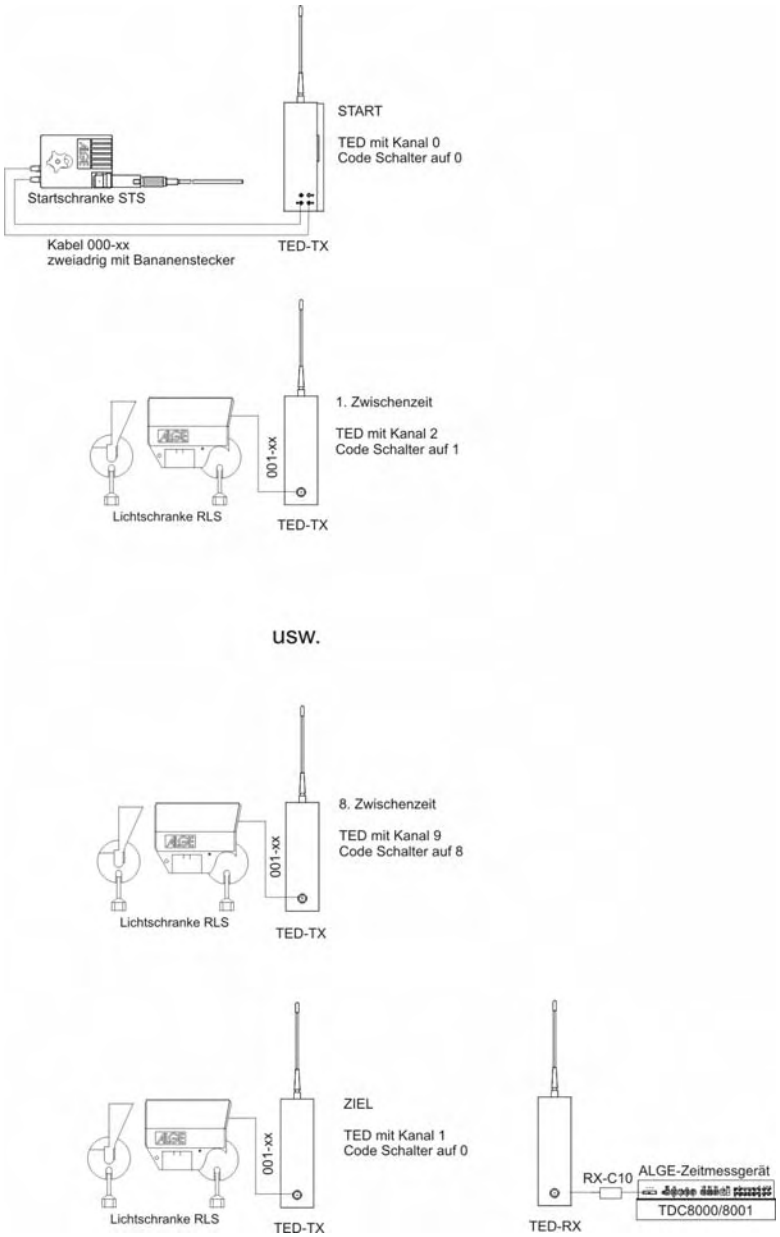


TED-TX Code-Schalter (12)	TED-TX timing channel banana socket green (5) and black (6)	TED-TX DIN-socket timing channel on pin 1	TED-TX DIN-Stecker timing channel on pin 2
switch position = 0	0	0	1
switch position = 1	1	1	2
switch position = 2	2	2	3
switch position = 3	3	3	4
switch position = 4	4	4	5
switch position = 5	5	5	6
switch position = 6	6	6	7
switch position = 7	7	7	8
switch position = 8	8	8	9
switch position = 9	0	0	2

Timing with 10 timing channnels at a Ski test run:

Adjustment of the code-switcher (12) to the TED-TX

Channel	Function	Emitter	Switcher position (12)	Cable type	Connection plug at TED-TX
C0	Start	Startgate	0	000-10	Banana plug 5+6
C2	Intermediate time 1	Photocell	1	001-10	DIN-plug (7)
C3	Intermediate time 2	Photocell	2	001-10	DIN-plug (7)
C4	Intermediate time 3	Photocell	3	001-10	DIN-plug (7)
C5	Intermediate time 4	Photocell	4	001-10	DIN-plug (7)
C6	Intermediate time 5	Photocell	5	001-10	DIN-plug (7)
C7	Intermediate time 6	Photocell	6	001-10	DIN-plug (7)
C8	Intermediate time 7	Photocell	7	001-10	DIN-plug (7)
C9	Intermediate time 8	Photocell	8	001-10	DIN-plug (7)
C1	Finish	Photocell	0	001-10	DIN-plug (7)



4.5 Impulse transmission of more timing channels with Timy and cable 207-10

The cable 207-10 works only with the Timy. You can only use start cables (000-xx or 002-xx) for this system. There will be no impulse and also the Timy prints an error message when you use a stop cable.

These are the functions of the code switch (12). This have no use in the program Training REF, here it is only necessary that the TED channels are different.

Codeswitch	Chanal	Function
0	C0	Start
1	C1	Finish
2	C2	Intermediate
3	C3	Intermediate
4	C4	Intermediate
5	C5	Intermediate
6	C6	Intermediate
7	C7	Intermediate
8	C8	Intermediate
9	C0	Start

5 Data transmission

Operational area:

- ☞ Data transmission from an ALGE timing device to a ALGE displayboard
- ☞ Data transmission from Timer S4 to Timer S4 (program 0)
- ☞ Data transmission from ALGE timing device to printer P4A
- ☞ Data transmission from ALGE timing device to Comet parallel display
- ☞ Data transmission from Comet to football-displayboard
- ☞ Data transmission from ALGE-timing device to a PC
- ☞ Data transmission from PC to PC

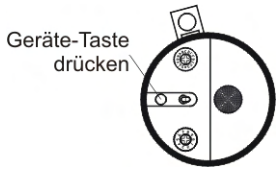
There exists different types of operating modes for data transmission:

Data transmission ALGE 1 second	ALGE Protocol, 1 data set per second
Data transmission ALGE 0,1 second	ALGE Protocol, 1 data set per tenth second
Data transmission 2400 Baud	Data transmission with control character and 2400 Baud
Data transmission 4800 Baud	Data transmission with control character and 4800 Baud
Data transmission directly	Data transmission without protocol of 2400 to 4800 Baud

Data repetation

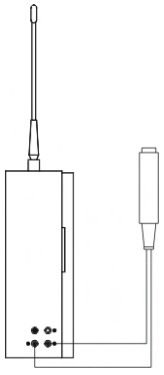
If the data don't arrive at the receiver, you can trigger off a data repetation at the transmitter. The last data set is always stored in the TED-TX.

- ☞ by pushing the device-button (10) at TED-TX



or

- ☞ by pushing of the hand taste, connected on the green and black banana plugs of the TED-TX



5.1 Data transmission 1 second

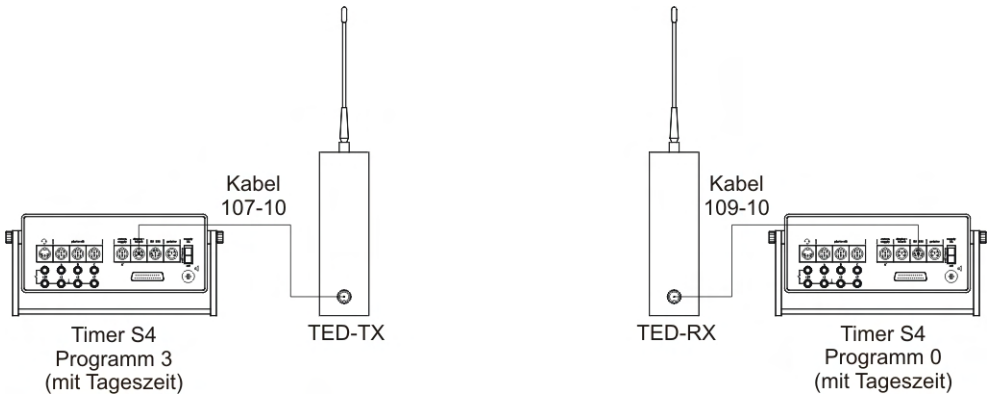
Adjustment: Code-switcher (12) of TED-TX and RX at position 0

If the TED-TX recognizes reasonable data (ALGE protocol), he will change to the operating mode “data transmission 1 second”. In this mode, every data set will be transfered 10 times together with a checksum.
As soon as the TED-RX has received a data set with right checksum, he will display the data set.

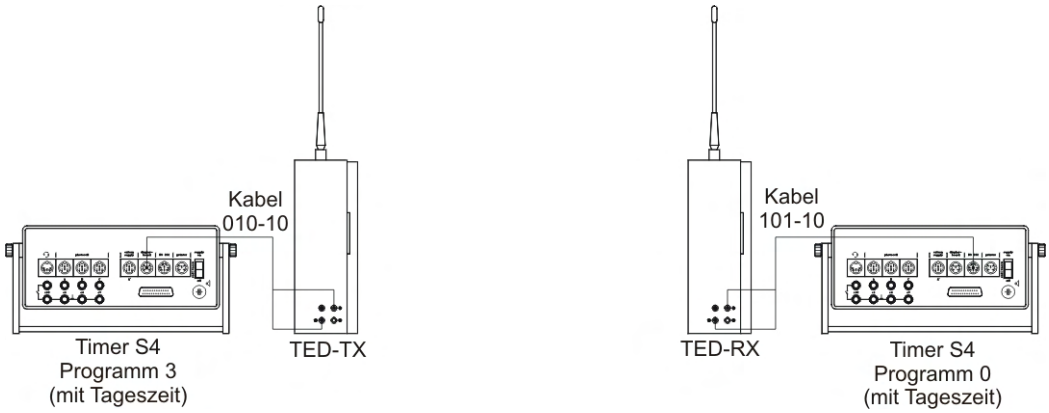
This operating mode is used if it is important, that the receiver will get all data in a secure way. But this just functions if the data will not be sent all the time. If data are sent all the time (e.g. for a displayboard), it may happen that parts of the data will get lost.

5.1.1 Data transmission from Timer S4 to Timer S4

The Timer S4 can supply the TED-TX via a serial interface.



Timer S4 with TED without supply of the TED’s.

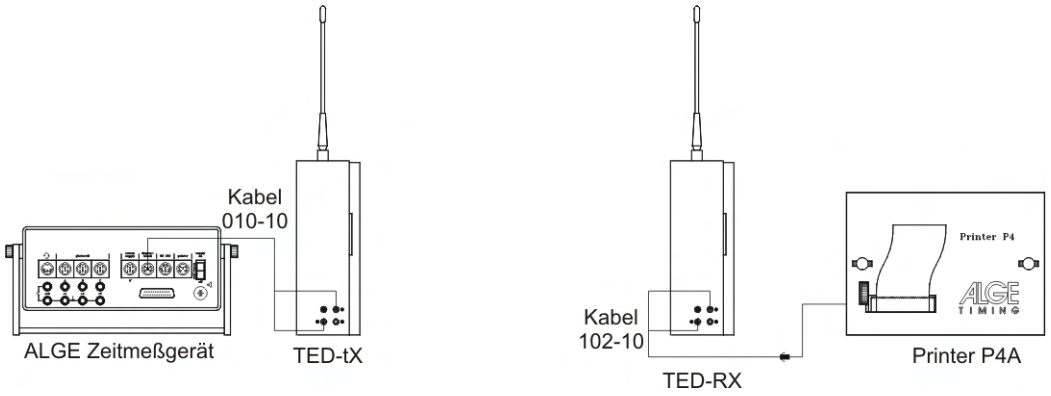


Data transmission of the start time from a synchronous Timer S4 to another Timer S4

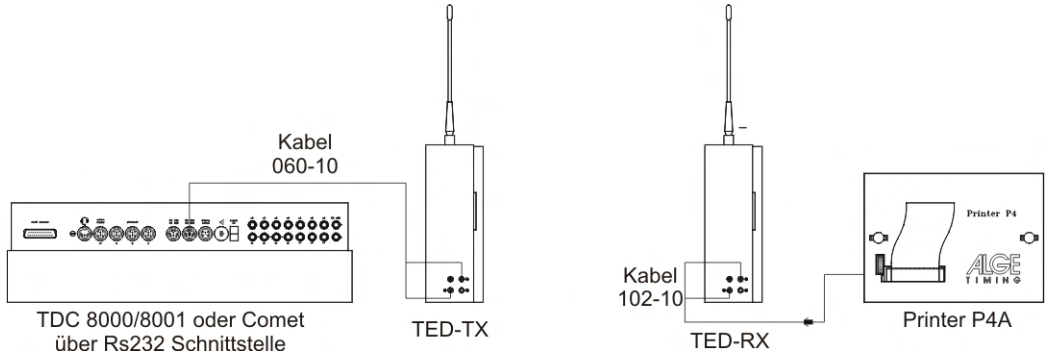
- Adjust Timer S4 at the start to program 3 and indicate daytime
  - ☞ Push yellow and red button at the same time.
  - ☞ The diplay of the Timer S4 shows „HP 0:00.00“
  - ☞ Type the hours with the red button.
  - ☞ Type the minutes with the yellow button.
- Adjust Timer S4 at the finish to program 0 and indicate daytime
  - ☞ Push yellow and red button at the same time.
  - ☞ Push yellow and red button at the same time once again.
  - ☞ The display of the Timer S4 shows „SY 0:00.00“
  - ☞ Type the hours with the red button.
  - ☞ Type the minutes with the yellow button.
- Start both Timer S4 together (synchronous start) via a start cable (channel C0).
- The display of the Timer at the finish shows the daytime.
- To delete the daytime, push yellow and red button together.
- Program 0 works now as described in the manual for Timer S4.
- The start-Timer must be brought to the start.

Data repetation
If the start time don’t arrive at the finish-Timer, you can send the data once again (see side 18).

5.1.2 Data transmission from ALGE timing device to printer P4A



If the output „RS232“ is used by a timing device, you must use cable 060-10 for the TED-TX.



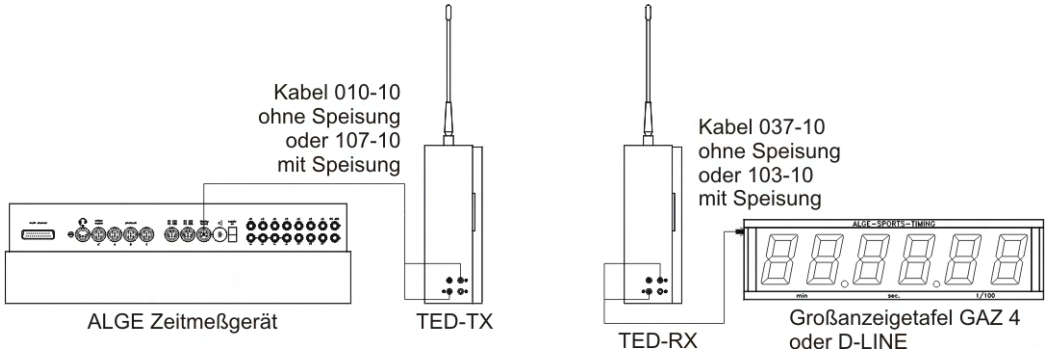
5.2 Data transmission 0,1 seconds

Adjustment: Code-switcher (12) of TED-TX to RX at position 1

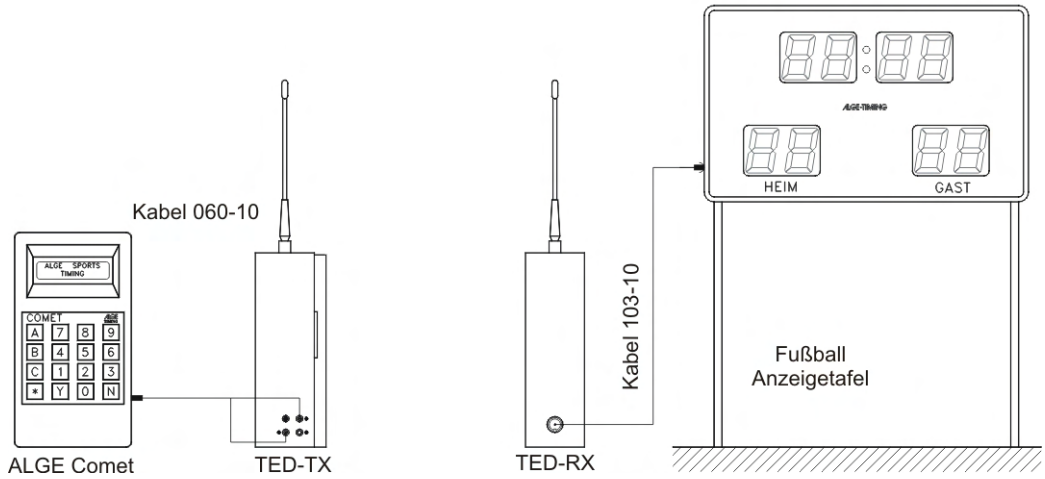
Just for data with ALGE protocol. Every data transmission from TED-TX to RX happens once. Every data set has got a checksum, if these are right, the received data will be displayed.
In this operation mode it is possible to transfer a running tenth.

This operation mode is used if it is important, that the transfered data must be available immediately or if many data sets should be transfered in a short time. The transmission security isn't as high as at mode "data transmission 1 second".

5.2.1 Data transmission to ALGE displayboard

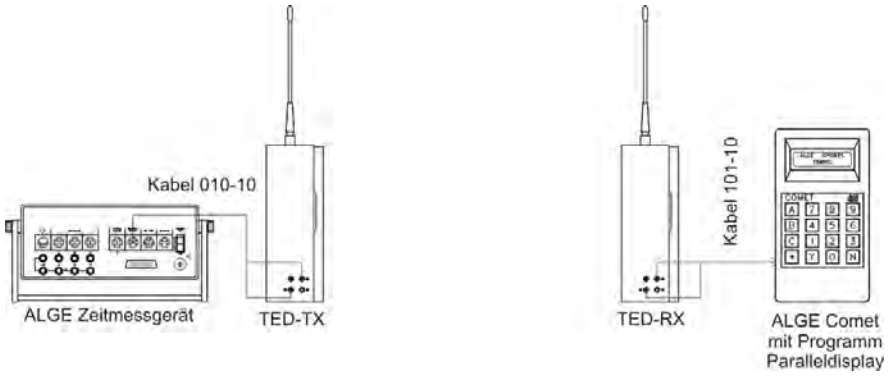


5.2.2 Data transmission from Comet to ALGE soccer displayboard

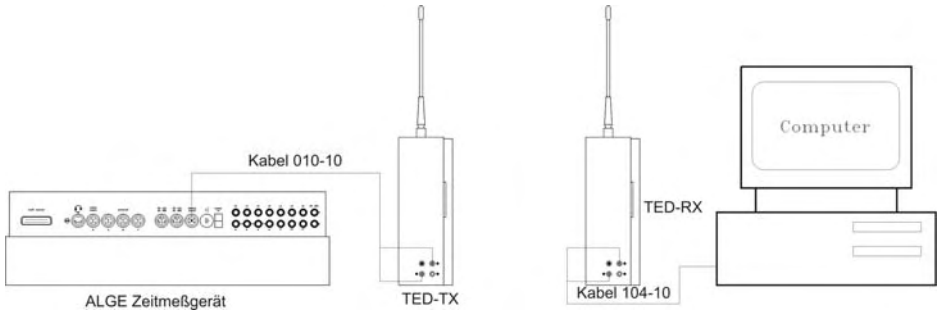


In order to supply TED-TX from a Comet you need cable 108-10.
We would recommend to supply the Comet by an ALGE power-supply unit.

5.2.3 Data transmission from a ALGE timing device to Comet Parallel display



5.2.4 Data transmission from ALGE timing device to PC



5.3 Data transmission directly

Adjustment: Code-switcher (12) of TED-TX and RX at position 6
Adapter 119—5 must be connected to the TED-TX
At first you have to send a data set that the TED-TX switch in the direct mode (illuminating diode goes from blinking to shine).

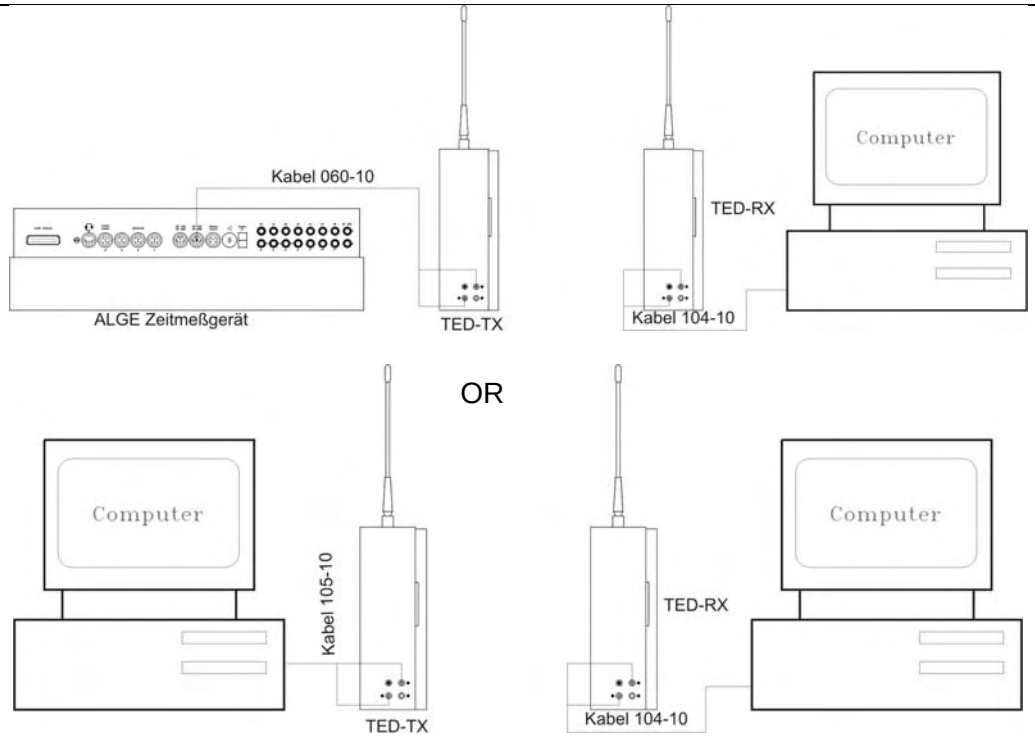
Every data set with a baudrate of 2400 up to 4800 Baud will be sent. No control-character is required. The transmitter is always online, that means that a power-supply unit for the transmitter is recommended by us.

The data won't be checked by the receiver, but passed on as received. The verification should be conducted of the Software of the receiving unit. (PC).

Advantage: Every data set will be transfered. No control-characters are required. Every optional data protocol will be transfered.

Disadvantage: The transmitter TED-TX has a high power consumption, since it is always online. Since the data are sent without protocol, the receiver is able to check the data.

Range of use: Wireless data transmission with optional data protocol from one device to another (PC).



6 Technical data

Operating frequency:	Standard 10mW		433,500MHz
	Standard 400mW		433,800MHz
	Optional band)		from 433,050 up to 434,790MHz (in 70cm
Broadcast performance:	TED-TX10	10mW	
	TED-TX400	400mW	
Range:	TED-TX10	approx. 1,5 km	
	TED-TX400	approx. 5 km	
Signal input TED-TX:	activ low, at least 10 ms, debounce-time approx. 50 ms		
Signal output TED-RX:	activ low, 100 ms		
Supply: external	TED-TX10 and RX		+6,5 to 28 VDC
	TED-TX400		+9 to 15 VDC
internal	6 x Alkaline batteries 1,5 V Typ AA or 6 x NiCd accus 1,2 V Typ AA		

Charging rate:	TED-TX10	Transmitting operation	approx. 35 mA
		Standby Mode	approx. 3 mA
	TED-TX400	Transmitting operation	approx. 300 mA
		Standby Mode	approx. 3 mA
	TED-RX	Normal operation	approx. 35 mA
		Test operation	approx. 70 mA

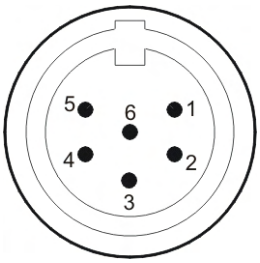
Operation time: see side 6 and 7

RS232 interface (true for TED-TX and RX):

Input- Output-format: 1 Startbit, 8 AXCII Bit, no Parity-Bit, 1 Stopbit
Transfer speed: 2400 or 4800 Baud
Connector assignment:

TED-TX DIN-plug:

1	Impuls Input (Start)
2	Impuls Input (Stop)
3	GND
4	Input V-ext.
5	Output +5 V stabilised Input +5V
6	Data input



TED-RX DIN-plug:

1	Impule output (Start)
2	Impulse output (Stop)
3	GND
4	Input V-ext.
5	Input +5V
6	Data output

Banana plug:

with yellow marking	Data, identically with PIN 6 of DIN-plug
with green marking	Impulse, identically with PIN1 of DIN-plug
with black marking	GND, identically with PIN 3 of DIN-plug

Antenna:

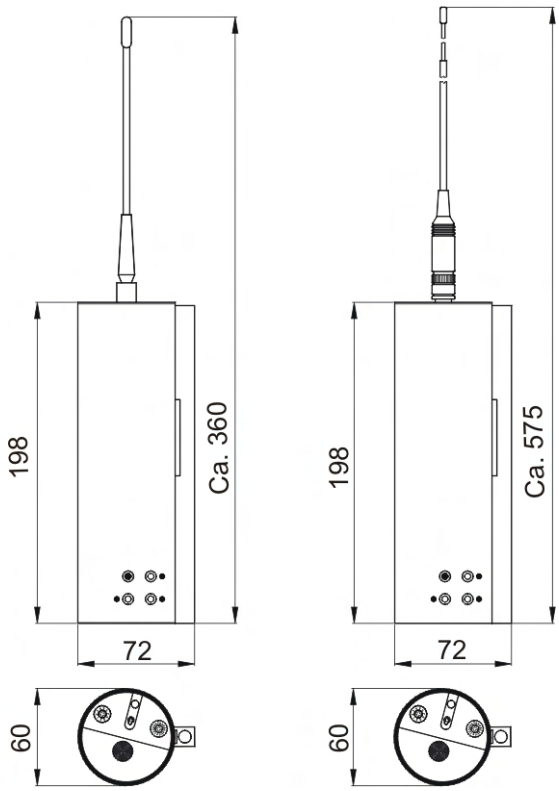
at TED-TX10 and TED-RX10	l/4 antenna, approx. 165mm
at TED-TX400 and TED-RX400	BNC connection for 50 W antenna

Working temperature: -20 up to +50°C

Weight:

without batteries	approx. 600g
with batteries	approx. 750g

Dimensions:



Note: